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SUBJECT: Surface Flows - Closed Basin Project

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AVAILABILITY OF SURFACE FLOWS FOR SALVAGE  
BY THE CLOSED BASIN PROJECT

The feasibility report on this project was published in 1963. Since then changes in the handling, or use, of irrigation water have evolved which are reflected in the quantity of surface flows now available for salvage.

In 1947 sub-irrigation was still practiced in the highly cultivated area of the Closed Basin between Monte Vista and Center, Colorado. The Bureau of Reclamation conducted an Inflow-Outflow Study in this area to determine water use during the years 1949-50-51 and 1952. It was from records of this study that the volume of irrigation wastes and drainage flows available to the salvage project were computed. The amount available at that time was estimated to average 5,900 acre feet per year.

Sub irrigation was eliminated practically by 1950 due to the large number of irrigation wells being installed and the resultant dependence on row and surface irrigation. This change was followed by the switch to sprinklers. The growth in use of sprinklers is shown:

<u>YEAR</u>	<u>NO. IN USE IN CLOSED BASIN</u>
1973	204
1974	326
1975	464
1976	706
1977	874

This continual increase in water use efficiency has resulted in eliminating the 5,900 acre feet of drainage flows and irrigation wastes available for salvage.

The increased efficiency in water use is also exemplified by Colorado's effort to meet the requirements of the Rio Grande Compact annually.

Further efficiencies arise by reason of the State Engineer's close watch over irrigation systems to determine possible water wastes. The State Engineer also keeps close check to see that large artesian wells are shut down during the non-growing season.

Although surface flows from the irrigated area are practically eliminated, surface flows from other areas remain much as determined in the feasibility report. However: Two surface flows require consideration.

1. From Hooper Hot-Well Fish Farm. Location: at the plays near the Southwest corner of the Baca Grant\*. The discharge was measured to be 2.3 c.f.s. and a drop inlet here is indicated. There is a filing on this water and this right should be acquired.

2. Where the channel passes under Colorado Highway #17 about ten miles North of Hooper. There is a filing by the Baca Grant on some of the flood flows here. The acquisition of this right should be examined as this may be less costly than providing a suitable diversion structure.

Surface flows will enter the channel at grade west of Colorado Highway #17 and no inlet requirements are indicated. Flows caused by the dumping of nesting ponds in the Mishak Lake Refuge can be scheduled for mutual benefit to the two agencies concerned.

Flows from Big Spring Creek will enter San Luis Lake and their proper handling must be coordinated with the Colorado Wildlife Department.

Flows of Little Spring Creek pass under the San Dunes Highway 2.5 miles from the Main Conveyance Channel and are so small as to be uneconomical to pass to the channel by means of a suitable structure.

Other surface flows will accumulate near the conveyance channel by slow spreading as no definite channels exist. Water from these flows could, in all probability, be introduced into the channel by means of small portable, low head, high volume, gasoline powered trash pumps.

The total water supply of the Closed Basin is over 1 million acre feet annually therefore from an old BOR rule of thumb, up to 333,000 acre feet of water acre available for salvage. The salvage facilities may have to be extended but salvageable water exists in quantity.